

PROJECT NUMBER : 2707
PROJECT TITLE : Vision Inspection Technologies
PROJECT LEADER : R. J. Maher
PERIOD COVERED : December, 1990

I. PACK INSPECTION SYSTEM

A. **Objective:** Develop and implement an on-line cigarette pack inspection system with the capability for global inspection.

B. **Results:** The new pack gauge blocks were received from the engraver. These new blocks differ in that the anodization was a gray instead of black. This gives sufficient color contrast between the engraved lines and the block as well as the block and the background.

Laboratory testing of the OSIRIS pack inspection system has been initiated and its inspection functionality has been demonstrated. Several serious Matrox software bugs have been encountered which delayed completion of the system software. One of the problems limits the system's capability to simultaneously inspect packs and present graphical information. We are working closely with Matrox to resolve this situation to avoid impacting system performance during the factory test.

C. **Plans:** Resolve the Matrox software bugs and complete the software development. Begin extensive laboratory testing of the prototype. Add the low variance modifications to the training and inspection algorithms.

II. PRINT WEB INSPECTION

A. **Objective:** Develop a system for the global inspection of print web on the printing press.

B. **Results:** An optics table was installed with a motorized drum to simulate a print web press. ETI installed its modified Dalsa Camera. Since the fast clocking ETI control board wasn't ready, a board that can accommodate a surface speed of 200 ft/min was used. This permits us to obtain image data with the ETI frame enable and encoder techniques. ETI will have the fast clocking camera (800 ft/min surface speed) ready before January and will substitute it for our present system. Several camera interface and imaging board problems were encountered and were adequately solved so that we can obtain monitor images of a sample web surface. The monitor images are very good in comparison with either the standard Dalsa images or with standard RS170 images.

The computer software that has the capability to save acquired images was installed. Some problems exist with the software and are being addressed.

The interfacing of a line scan camera to the Trapix system is being pursued.

- C. **Plans:** Finish the installation of the ETI/Dalsa camera system with the 800 ft/min capability and begin the planned experimental program.

III. PRINT WEB INSPECTION

- A. **Objective:** Develop a system for the off-line inspection of print cylinder verification materials.
- B. **Results:** Daedal has been chosen as the vendor to supply the material handling system. The motion control hardware will be integrated with an air chuck to hold the printed web in place during inspection.

An algorithm to create reference images for use in the cylinder verification inspection has been developed. This algorithm will provide a stable image for a wide range in the illuminating intensity. Work has begun on the inspection algorithm.

- C. **Plans:** Begin testing of different algorithms that may be used for the inspection process.

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